

WATER SPORTS

Outdoor recreation on water includes swimming, canoeing and sailing, boating (rowboating and motor-boating), water skiing, and fishing. A wide variety of water resources are required for these activities: swift streams, lakes, ponds, swimming pools, and large areas of uninterrupted water surface for sailing or boating. Neither are the activities always compatible with one another. The quiet water in a shaded cove that brings peace to the heart of the fishermen is destroyed when boats for water skiing pass by. Water contaminated by discharge from cities and industries is conducive to none of these outdoor activities; even boating is unpleasant under these conditions.

These activities, when grouped together into a water-oriented activity score, provide the second most predictable set of activities for analysis. Thirteen percent of the variance in this score among North Central females may be accounted for by regression on the background factors. This percentage ranges up to 26 percent for the male in the Northeast and in the West. Age and urbanization account for most of the variance, from 7 to 20 percent. Education, occupation, and income account for 0.5 to 5 percent of the variance within the region-sex groups. (See table 10, appendix A.)

If we may interpret degree of urbanization as a measure of proximity to water areas, we may include proximity with leisure time and age, as factors which condition most importantly participation in these water activities. The physical exertion required for some of them would strongly support the age factor.

Let us briefly examine some of the correlates of swimming. Rates decline by age for each sex. Participation, even during the summer, is greater in some regions than others, and over the year it is associated with climatic conditions of the region. Income is associated with participation by region and by size of place of residence. However, residents of large cities participate more and residents of rural areas participate less than the average. Whites participate more than nonwhites. The health and impairment status of the person is related to participation. As education increases, participation in swimming increases also. In short, the activity is highly responsive to a number of predictor variables.

Water activities, themselves, are fairly closely interrelated, and the factor loadings are high on all of the water activities and on several of the related activities. These factor loadings, as shown in table 4, appendix A are: boating 0.78, water skiing 0.71, fishing 0.60, swimming 0.43, picnicking 0.32, and camping 0.39. Walking for pleasure and bicycling each receive a negative factor loading.

Construction of swimming pools close to population aggregates is one means of meeting the demand for

water activities. Pools may be located near the residences of those needing them, thereby reducing travel; and they serve all ages. Pools may well be a most economical means of supplying recreation hours in volume. Boats are everywhere evident and the many factors associated with boating participation strongly support continued increases so long as access points are available and water areas are suitable. Stream contamination is a problem which can limit participation in all water sports considerably. Fishing, on the other hand, the traditional delight of the outdoorsman, has been increasing and may be expected to continue to increase, if adequate resources are provided.

SWIMMING

Swimming represents a wide variety of activities. The "quick dipper" may take a brief but active swim between other daily activities. A less active but longer swim may involve being in and out of the water in 30 minute intervals throughout a morning, an afternoon, or for the entire day. The all day sun bather and the occasional dipper may exert only a small amount of effort while in the water. The scuba diver may spend an entire day in and out of the water, or only a few hours, as the occasion requires. His purpose may be to bring home fish, marine objects, or archaeological artifacts. In addition, swimming may be accompanied by water polo, or boating; it may include periods of surfboard riding or water skiing; it may involve games or picnics on land near the water, ranging from baseball to bridge, and for the young it may include building sand castles.

With this wide variety of activities which one may classify as "swimming", it is no wonder that the time required for a swimming occasion ranges from a quarter or a half hour to a period encompassing a whole day. And, too, the monetary outlay required for swimming may vary widely with the locale, the length of time engaged, and other circumstances. Certainly, a dip in a nearby creek or river, requires only leisure time, provided one may gain access without being harassed. Many farm lads undoubtedly began their swimming experiences this way. On the other hand, one may fly to Hawaii or to the Caribbean for a week of basking in the sun and only occasionally go into the water. The level of income required for swimming may vary, depending upon the type of swimming. Unfortunately, our study sheds no light on the variation in type of swimming, although it shows participation by income.

In addition, the above indicates that there is wide variation in the physical exertion or activity required to engage in swimming. Lying on the beach may be engaged in and, in fact, be beneficial to persons who

possess impairments or are in ill health, but active swimming over a relatively long period of time may require excellent health and demand extreme physical exertion.

Similarly, the physical coordination required to float requires only minimum skill. On the other hand considerable practice and skill are required to enter into competitive racing or diving, and in the case of scuba diving, particularly, knowledge of safety precautions is necessary.

Perhaps because of its general popularity, swimming probably accords little status to the individual. However, undoubtedly status accrues through several associated situations. This includes the locale or location of swimming, the prestige level of the club to which the person may belong, and related status symbols and conditions surrounding the activity. This is not to say that outstanding performance, as the winner of diving trophies or swimming meets, as in all sports, does not bring the participant status and prestige.

Since swimming requires manipulation of the body, coordination, and muscular activity, it is possible to continuously achieve higher and higher skill levels. Hence, continuous learning is possible through participation and practice.

In its purest form, swimming undoubtedly satisfies a motive for simple bodily manipulation. As a competitive sport, the motive for achievement and prestige attainment is added. Undoubtedly many additional motives are involved (sociability, exposure to risk, adventure, etc.), depending upon the age, socioeconomic status, interest, etc., of the participant. Such motives are meaningful only in the context of the situation.

The population 12 years of age and over swims approximately 6.5 times per person a year. These occasions are chiefly in the summer, 80 percent of them, in fact. The West exhibits the highest fall and spring rates (1.12 and 0.89 days per person) of any region, and the North Central, the lowest. The discussion which follows considers only the summer experience (tables 1.01, 2.01, 3.01, and 4.01).

Swimming was engaged in by 45 percent of the population 12 years of age and over during summer 1960. Participation in swimming amounted to 5.15 occasions per person during the 3-month period. This places swimming next to walking and driving for pleasure in popularity (table 1.02.16).

The Northeastern region ranks highest in swimming days per person, 6.82, while the South ranks lowest, 3.97. The West, 5.36, has a higher rate of participation than the North Central States, 4.63 (table 1.02.16).

This regional variation is almost inversely related to the available inland surface water supply per capita. The relationship is also poor when miles of beach per 1,000 persons 18 years of age and over are considered. The region is too large a unit to examine supply-use relationships, and observation suggests that much swimming takes place in pools rather than natural water areas. The percentage participating one or more times annually in swimming is directly related to rated opportunity within the area of the 66 sampling areas of the Survey

Research Center national sample.^{1/} This percentage increases from 35 percent in areas of least opportunity to swim to 54 percent in areas of best opportunity. The presence of the physical resource, then, directly affects participation, as also does climate on an annual basis.

Swimming and age

Participation in swimming is highly associated with age, for both male and female. The rate declines steeply from a high of 17.6 occasions during the summer for males 12 to 17 years of age, inclusive, to 0.6 occasions for the summer among males 65 and over. A parallel situation exists for females (table 1.02.16). This relationship is exactly the same for each region, although the relative magnitude of regional rates varies.

The stability of the association between age and swimming is seen, also, when age and sex rates are examined by size of place of residence (table 1.03.16). The variation is greater between regional means than between size of place of residence means. The rates by size of place of residence decrease with size of place, declining successively from 5.9 in cities of over 1 million to 4.7 in rural areas.

Within each size of place of residence class the participation rate declines successively with each age group, both for male and, in most cases, female also. The greatest decline is between the youngest age group (12 through 17) and the next higher age category.

For each income class, the rate of participation in swimming increases for the United States as a whole and for practically all classes within a region. For example, families earning less than \$1,500 annually participate at a rate of 1.2 occasions per person during the summer, as compared with more than 10 occasions per person during the summer for members of families in the \$15,000 and above income class. The correlation coefficient, using income classes (table 1.02.16), is 0.92. The same general relationship holds when one considers income by size of place of residence, although the step increases are not as uniform as they are by region. However, income influences participation days per person within each size of place of residence class (table 1.03.16).

Rate of participation by whites is about 2 1/2 times that of nonwhite (5.52 compared with 1.96). The difference between rates is greatest in the Northeast, where the white rate of 7.18 compares with the nonwhite rate of 1.63, and less in the West where the nonwhite rate most closely approximates the white (5.39 compared with 4.74). (See table 1.02.16.) Although the white female rate is about the same as the male rate, the nonwhite female rate is less than half that of the nonwhite male (2.82 compared with 1.19). This difference according to sex appears to be fairly constant across each size of place of residence class, although sample

^{1/}"Outdoor Recreation for America." Washington: Outdoor Recreation Resources Review Commission, 1962. Appendix table 15, p. 217.

size does not permit adequate exploration of this (table 1.03.16).

Swimming is associated with size of place of residence. Persons living in or near urban areas (for example, the rural population in standard metropolitan areas) have rates of participation generally greater than the population living in rural farm and rural nonfarm areas. Such is the case in each region, except the Northeast, where the rural nonfarm rate of participation is unusually high (9.77). In each region the rural farm participation is lowest of all place of residence categories. There is a fairly uniform decrease in rate from the largest city to the most rural area (table 1.02.16). Undoubtedly the combined differential resulting from variations in income and age within each of these subpopulations (that is, size of place of residence by region) explains much of the apparent ecological effect upon participation rates.

Education of persons 25 years or older is directly related to participation in swimming. The rate rises from 0.57 for those who have had 4 years or less schooling to 5.85 for those who have completed college or more. The general pattern is followed within each region, although there is some variation. For example, in the Northeastern region the rate decreases with the highest educational group and the same is true in the West (table 1.02.16).

For employed persons 14 years of age and over, the rate of participation is lowest for farmworkers and highest for professional, technical and kindred workers. White-collar workers have the second highest participation rate, but other occupational groups do not vary greatly. There are a few variations from this pattern according to region. For example, in the South, the lower income occupations, laborers, and service workers, have low rates which approximate those of farmworkers; this probably is an effect of race. In the West and Northeast the participation of service workers is higher relatively, than the Nation (table 1.02.16).

When occupations are viewed by size of place of residence, the same relationships hold. Of course, farmworkers evidence participation only in rural territory. Professional and technical workers, and white-collar workers have higher rates in very large cities (over 1 million) than in other locations. Except for these, there are no systematic relations which help explain participation. It would appear that occupation has a small contribution to make in explaining swimming behavior, in addition to size of place of residence, region, and other factors previously mentioned. However, the compound effect of age and income may well be the most significant factor (table 1.03.16).

Both men and women who swim a great deal judge their health to be excellent, and, conversely, those who swim little judge their health to be poor. The relationship is quite direct between these two factors for each age group, including the age group 65 years and over. The most frequent participants, incidentally, of any classification, are males aged 12 through 17 who judge their health to be excellent, this group reporting an average of almost 20 occasions during the summer. This relationship with health also is observed for impairments. Persons with limiting

impairments, nevertheless, participate to some extent, almost two occasions per person during the summer (table 1.04).

Swimming preferences

Swimming ranks first in the preference order, 42 percent of the population indicating a preference for it. The nearest contender to this position is picnicking and fishing, each receiving 33 percent of the general preferences (table 1.21).

For the United States as a whole, preferences for swimming are greater in the city, 52 percent, than in other place of residence categories. The percentage declines fairly systematically from the largest place of residence class to the rural outside SMA, the latter being 32 percent. The effect of this gradient of urbanism is pronounced in the Northeast where 57 percent of the population in SMA's over 1 million express a preference for swimming (table 1.17).

Expressions of preference are about the same for both male (40 percent) and female (43 percent). As one would expect from the nature of the activity, the percentage preference is greatest among the youngest age groups, three-fourths of the 12 and 13 year-olds expressing a preference for swimming among males and 83 percent expressing a preference among females. The percentage declines with each age category to a low of 12 percent among males 65 years and over and 5 percent among females of the same age group (table 1.17).

As a vacation activity swimming (22 percent) is preferred over all other activities, sightseeing being almost as popular (21 percent). The association of vacation preferences with size of place of residence and age is evident here, as above (table 1.22).

For the United States as a whole, sightseeing is slightly preferred over swimming as a weekend summer activity, although in the Northeast swimming is preferred. Other regions show a preference for sightseeing or fishing (table 1.25).

For a day's outing, picnicking (31 percent) is preferred over swimming (14 percent) as a summer activity. Such is the case in each region (table 1.28).

For an occasion of only 2 or 3 hours duration, 10 percent express a preference for swimming. This compares with 10 percent preferring walking for pleasure, 11 percent playing games, and 15 percent driving for pleasure (table 1.31).

The choice of swimming as first, second, or third preference is highly associated with frequency of participation in swimming. Seventeen percent who did not participate nevertheless express a preference for swimming, suggesting an extensive unfilled need (table 1.12).

Activities preferred by persons who participate in swimming form a clear pattern. Swimmers also prefer boating, water skiing, camping, horseback riding, and bicycling—suggesting physically active outdoorsmen. Conversely, negatively associated with participation in swimming is preference for fishing, hunting, picnicking, and walking for pleasure. Among passive activities, preference for driving for pleasure, sightseeing and attending outdoor sports events are negatively associated with participation in swimming (table 1.12).

The correlation between participation in swimming and in other activities for summer 1960 is shown below. Swimming participation is significantly associated with all other outdoor activities. The association is particularly high with other activities of youth: playing outdoor games, picnicking, boating, water skiing, bicycling and attending outdoor sports events. This suggests that swimming facilities will enhance any combination of summer recreation facilities. The correlation coefficients from appendix A, table 3c) follow:

Playing outdoor games or sports.	0.42
Boating other than sailing or canoeing . . .	.39
Picnicking. . . . .	.38
Bicycling . . . . .	.28
Water skiing . . . . .	.28
Attending outdoor sports events . . . . .	.27
Hiking . . . . .	.23
Nature walks . . . . .	.23
Horseback riding . . . . .	.22
Fishing. . . . .	.21
Camping. . . . .	.21
Driving for pleasure. . . . .	.20
Sightseeing . . . . .	.18
Walking for pleasure. . . . .	.16

Thirty-nine percent who prefer swimming participate as freely as they would like. The reason for restricted swimming participation most frequently given is that of time (32 percent) and lack of facilities (13 percent). Only 7 percent give financial reasons for not participating as much as they would like (table 1.14A). As the labor force enjoys more leisure time, as the retired population increases, and as the population in the younger ages increases, one may expect a portion of these additional hours—at least in summer—to be spent in swimming and water sports.

SAILING AND CANOEING

The participation rate for canoeing over an entire year is 0.12 occasions per person 12 years of age and over. This rate provides insufficient cases for analysis of demographic characteristics of canoeists. However, the data (tables 1.01, 2.01, 3.01, and 4.01) show that canoeing is chiefly a summer activity. Seven-hundredths day per person out of 0.12 annually occur during summer. The rate for canoeing is about the same for each region (0.13 for the Northeast and North Central, 0.12 in the West, and 0.1 for the South).

Sailing participation is about the same as canoeing, sailing being 0.11 occasions per person for the year. However, sailing is somewhat more evenly distributed between the summer-fall seasons than canoeing. There is considerably more sailing in the Northeast (0.17 occasions per person) and in the West (0.13 occasions per person) than in the rest of the Nation.

The preference mentions for these activities are not great enough to provide data for presentation.

BOATING OTHER THAN SAILING AND CANOEING

Technological development of the lightweight, high horsepower, gasoline motor coupled with techniques of boat manufacture, have made possible mass distri-

bution at popular prices. These factors have combined to make boating popular among 22 percent of the population during the summer. Including all types of boating except sailing and canoeing, this 22 percent use rate results from preference as well as technological improvements. Preference cannot be minimized, for our image of the yachtsman has been an image of the extremely wealthy.

Consequently, when small motor powered boats became available to large numbers, the motivation to possess a boat already was present. This motivation arose also from the desire to freely explore lakes and rivers, and a desire for speed, both in the boat and on water skis. Outboard motors reduce the effort of fishing, and make it easier to go farther and seek out better fishing spots. Undoubtedly, these are important motivations. In addition, one achieves status through possessing a boat which not very long ago only a rich man might own.

Another source of motivation arises with the use of the boat for group activities. The person with a family finds boating an unusually satisfying group activity. "Togetherness" is assured. The group may explore a lake or river for a day, or for several days with camping equipment.^{2/} Swimming, water skiing, fishing, even sightseeing, create varied activities for a party.

A number of skills are required in boating. Control of the craft and navigation, perhaps, employ few skills under normal conditions for small boats, but inclement weather presents greater problems. For longer distances across open water, the skill of navigation is involved. Whether the motor is an in-board or outboard motor, mechanical skills for maintenance of the motor come into play—knowledge many boys accumulate in working on motors and gadgets of American culture. Other skills are involved, also: painting, knowledge of and sensitivity to weather conditions, knowledge of legal regulations, and others. The limits of skill development in boating depend upon the type and size of the boat, and the water characteristics of the area. In any case, however, the variety of skills and the level of perfection to be achieved are sufficient to continually challenge most boatowners.

The physical activity required to launch and operate a boat may vary from moderate to quite a great deal. In particular, when unusual weather conditions occur, physical activity may tax one to the limit.

Both income and time are required for participation. Not only is income significantly associated with boat ownership and operation, but available time also is essential. Residential location in relation to water has an important bearing upon time required for a boating occasion. The boatowner who lives beside the water may engage for 2 or 3 hours at a time with ease, but the man who lives further from the water must ride to the launching point, perhaps carting his boat behind his automobile. This requires time, and he may be unwilling to go boating for less than a full day's outing. Or, he may prefer to make several days of it, sleeping in the boat or camping on the bank. In

^{2/}For example, see John and Jane Greverus Perry, "Boatenting off the Beaten Track," *Popular Boating*, July 1961, p. 46.

sum, motivations to engage in boating are many, status achievement potentially high, the skill level needed is sufficient to challenge one's interest, and boat operation and ownership undoubtedly are related to available time as well as income.

The 22 percent of the population 12 years of age and over engaging in boating one or more times during the summer 1960 was spread fairly uniformly across the Nation. Slightly more were in the North Central region (27 percent) and slightly less in the South (19 percent). For the summer this represents 1.22 occasions per person during the 3-month period for the United States.

The summer is the period of most intense boating activity. In the fall, there are only 0.36 occasions per person and in the spring, only 0.25 occasions. Our definition of boating excludes canoeing and sailing, but does not exclude row-boating. However, it is thought that most of the boating occasions reported involved the use of either an outboard or inboard motor (tables 1.02.05, 2.02.05, 3.02.05, and 4.02.05).

Boating rates by region

The North Central region (1.48 days per person), and the Northeast (1.38 days per person) have the heaviest boating participation rate for the summer. For the fall, the heaviest participation is the North Central States (0.48) and West (0.42). In the winter participation is greatest in the South (0.28 days per person), with practically no boating in other areas. In the spring, the South also has heavy participation (0.40 days per person) with the West (0.25) and the North Central States (0.21) following behind. Thus, climate affects boating participation (tables 1.02.05, 2.02.05, 3.02.05, and 4.02.05).

Males participate in boating almost twice more than females. For both male and female participation in boating declines with age. For example, the teenage male group participates at a rate of 3.7 days per person during the summer months, and with some variation, this rate declines successively to 0.18 for the 65 and over age group. The rate of participation is sustained fairly well across the 18 to 44 year age group. In fact, the male 25 to 44 age group participates slightly more heavily than the 18 to 24 year age group, and it may logically be supposed that this age difference is associated with income capability to own a boat. The same is true among females. This general pattern of sex-age relationship is repeated in each region, with a few minor variations (table 1.02.05).

Examining male rates by age for size of place of residence, it is clear that the depressed rate for males aged 18 to 24 years arises chiefly from lower rate in large cities (cities 1 million and above). Table 1.03.05 suggests that these are most probably white-collar workers or laborers living in large cities. It is clear then that males participate considerably more than females, and that the fairly definite relationship between age and participation is conditioned by residential and, to some extent, regional factors.

Income is directly associated with boating participation. The number of days participation per person increases fairly uniformly from 0.14 for the income

group earning less than \$1,500 annually to 3.16 for those earning \$15,000 or more.

In the Northeast participation rates increase with income, reaching an exceedingly high participation rate (for boating) in the top income class (7.58 occasions per person during the summer). In the North Central States the participation rate increases to the \$6,000 to \$7,999 income class, remains approximately constant to the top income group, when it falls off about half. Except for sampling variation, it would appear then, that the middle class and upper middle class income groups in the North Central States are the heaviest participants. In the South, the situation is somewhat similar, except that the peak participation group (2.45 occasions per person) is reached with the \$8,000 to \$9,999 income class, and falls off thereafter for higher income groups. On the other hand, in the West there are a group of relatively heavy "boaters" in a lower income class (\$3,000 to \$4,499 income class and another in the \$10,000 to \$14,999 income class). Who are these two separate groups in the West? The occupational table suggests that these are professional and technical workers in the higher income group, and white-collar and service workers in the lower income group. This, however, is merely an inference, since we do not present rates for occupations by income (table 1.02.05).

Place of residence introduces an additional variation in the relationship between boating participation and income. For the rural population (both in and out of SMA), participation increases to the next highest income class and then falls off slightly. For the small urban place (under 50,000) a peak participation rate of 3.49 days per person for the summer is reached with the \$6,000 to \$7,999 income class, after which the rate is about one-third as high.

Whites go boating about seven times more frequently than nonwhites: 0.18 occasions per person compared with 1.34 for white. The highest nonwhite rate is in the North Central region where the white is about four times the nonwhite rate. The nonwhite rate in the West is quite low. Nonwhite rates by size of place of residence are too small for comparison (tables 1.03.05 and 1.02.05).

Boating participation does not vary greatly by size of place of residence, as is seen in table 1.03.05. In each region except the Northeast, participation rates increase from the big city outward to more rural environments, and reach a peak with the rural population in standard metropolitan areas. For areas characterized by greater rurality, however, the rates are less, the lowest rate being the rural farm population outside SMA's. There is less variation in the Northeast and this pattern is not found there. For other regions, however, the relationship probably means that persons with sufficient income living somewhat closer to water areas for boating, particularly those living in suburbs, participate more than their big city counterparts (table 1.02.05).

Participation in rural areas increases with income, suggesting that proximity, given sufficient income, encourages participation (table 1.03.05).

Among those aged 25 years or more, participation increases fairly consistently from those with least schooling to those who have had some college, and declines slightly for those who have completed college

or more. One would expect this association because of the association with income. Education is associated in each of the regions, although in the West, the peak participation for boating is attained by the group completing high school (table 1.02.05).

Occupationally, the rates do not vary significantly. Farmworkers have the lowest rate (0.53) and skilled workers and foremen have the highest rate (1.67) with professional people next (1.46). By region, variation in rates is greater than between occupations, but it is not significant. In the West, for example, the highest rate is among professional workers (2.59), while the lowest rate is among the managers (0.50) and farmworkers (0.45). In other regions, peak rates are reached by the service workers in the Northeast (3.26), by skilled workers in the North Central States (2.32) and by the white-collar workers in the South (1.80). The rates are relatively uniform with only moderate variation (table 1.02.05).

Size of place of residence rates by occupation do not vary greatly. The greatest variation is among service workers who reach a peak rate in the small metropolitan place (50,000 to 1 million) but none of the other occupations vary greatly by size of place of residence (table 1.03.05).

The presence of impairments has no effect upon boating participation for group aged 18 through 44. However, for those 12 to 17 years, the presence of impairments limits participation considerably. State of health has a stronger effect than impairments. As health is judged less satisfactory, participation rates decline, from 2.25 for males reporting excellent health to 0.09 for males reporting poor health. A similar situation exists among females. The relationship, also, is fairly consistent for each age class (table 1.04.05).

Preference for boating

Boating, other than sailing or canoeing, ranks eighth—midway in the preference order—11 percent of the population 12 years of age and over choosing boating (table 1.21). Slightly more people prefer boating for a day's outing or a weekend trip (3 percent) than for a vacation activity (2 percent) or for a brief period of 2 to 3 hours (1 percent).

The general preference for boating is relatively evenly distributed by region (table 1.17).

For the United States as a whole there is little variation in the percentage choosing boating by size of place of residence. The smallest percentage choosing boating (9 percent) is among the population in standard metropolitan areas over 1 million, and the largest (14 percent) is found in small urban places (not in standard metropolitan areas). In the Northeast, on the other hand, the preference for boating is much greater in the rural areas outside SMA's (21 percent). This is consistent with our findings on boating participation in the Northeast, where the days per person was higher in the rural non-SMA's areas. Other regions do not duplicate this picture, however. In the West, for example, preferences for boating are expressed more frequently among residents of small cities, and there are other within-region variations which probably reflect accessibility to boating waters.

By age, the preference pattern is not as concentrated among younger people as are some other activities. For example, 17 percent among males 25 to 44 years of age is the highest percentage. Variations in boating preferences for vacation, weekend, day's outing, and for 2 to 3 hour periods, are not large (tables 1.22, 1.25, 1.28, and 1.31).

A preference for boating increases with days boating participation, from 6 percent preferring boating who have not participated at all during June-August 1960 to 22 percent preferring boating among those going 1 to 4 times, and 46 percent preferring boating who participate 5 or more times. A similar relation of increasing preference with increasing boating participation characterizes a preference for swimming, for fishing, and for water-skiing—all water-related activities. The percentage expressing a preference for camping also increases as days of boating increases. However, for most all other activities the percentage preference for the activity decreases as boating activity increases. This is particularly true for passive activities, such as picnicking and walking for pleasure (table 1.12). Those who go boating, then, develop into specialized water-oriented outdoorsmen, excluding many other forms of outdoor recreation.

This association of boating participation with other activities is reinforced by correlation coefficients (appendix A, table 3C). Highly associated are water skiing (0.47), swimming (0.39), fishing (0.37), picnicking (0.24), camping (0.23), and playing outdoor games and sports (0.22). Picnicking is the only contradiction. Table 1.12 shows that a preference for boating increases with days participation in picnicking, but (from table 1.12.05) an increase in days participation in boating is negatively related to percentage preference for picnicking. Thus those who already have a boat don't care too much for picnicking, but those who are picnicking would like to go for a ride in a boat. One may conjecture that currently active picnickers provide an apt market for boats.

Twenty-seven percent of those who prefer boating participate as freely as they would like. The remainder list both financial restrictions and lack of time as principal reasons, 32 percent mentioning finance and 26 percent mentioning time. Only 9 percent mention that they do not participate as often as they would like because of restricted facilities (too crowded, inadequate, or distant).

For both water skiing and boating, financial ability looms as a major restriction on participation. The percentage of those who do not participate as often as they would like is greater for those who prefer these two activities than for any others, the next highest being for horseback riding (26 percent) and bicycling (24 percent). Time was mentioned as a significant restriction for both boating and water skiing. It would appear then that increases in income and leisure will result in increases of boat purchase and boating participation (table 1.14B).

In relation to income the percentage who participate freely increases from 17 percent for those earning less than \$3,000 annually, successively with each income class (only four income classes are used in table 1.13) to 34 percent who participate as often as they would like among the income class \$10,000

or more. Similarly, the percentage mentioning time or money as a restriction is relatively constant across income classes, ranging from 56 to 62 percent, the lowest percentage being for the top income class. This serves to confirm the relationship between boating preferences and income (table 1.13).

WATER SKIING

Six percent of the population 12 years of age and over went water skiing during the summer 1960. They went an average of five times during the summer, but this amounted to only 0.3 occasions per person for the population as a whole. Water skiing, consequently, is engaged in less than any of the other water activities included in this study, except for canoeing and sailing.

During summer, participation is about equal throughout the Nation, although there is somewhat less water skiing in the North Central States (0.21) than in the West (0.43). However, on a year-round basis, because of climatic differences among the regions, water skiing is engaged in more in the South (0.54) and the West (0.62) than in the other two regions. The longer summer in the South and West makes more water skiing possible in the spring and fall in these regions (tables 1.01, 2.01, 3.01, and 4.01).

Considering now only the summer, we find that participation in water skiing decreases with age. The highest male rate is 1.20 for the 12 to 17 year group, and with each age class the rate declines successively to practically zero for those 45 years and over. The same relationship obtains for females, except that the overall female rate of 0.19 is about half the male (0.42). In the South and West the youngest age group (12 to 17 years) in the study participate slightly less than the next higher age group but, except for this variation, the pattern for the Nation of decreasing rate with advancing age is followed in each region (table 1.02.18).

Rates by sex and age show that approximately two-thirds of water skiing occasions are engaged in by persons under 24 years. It is this group that we wish to examine by size of place of residence (table 1.02.18).

Among males, generally, there is little variation in the rate of participation by size of place of residence. However, males 12 to 17 years of age participate at considerably higher frequencies if they live in the large cities rather than in smaller cities or rural territory. This is not exactly the situation among females within this age group, however. Boat ownership or having friends who own a boat conditions the frequency with which one participates in water skiing, as we shall see later (table 1.03.18). One would suspect, then, that immediate proximity to a water area, insofar as this is reflected by size of place of residence, does not affect participation as much as boat ownership.

Skiiing and income

The percentage participating in water skiing increases from 1 percent for the group earning less than \$1,500 to 14 percent for the group earning

\$10,000 to \$14,999. The step increases to the \$10,000 to \$14,999 class are fairly uniform. Similarly, the number of days participation increases from 0.04 days per person for the lowest income class to 1.32 for the highest income class for the United States as a whole. Thus, water skiing is directly and positively related to family income. This relationship varies by region. It may be partly a function of the number of young persons, say 24 years of age and under, in each income class by region. It may also mean that there are regional variations in boat ownership by income, which is the case. Table 5.47 shows that ownership of boat and motor increases successively with each income class from 1.8 percent among family income group earning less than \$1,500 annually to 17.6 percent for those who earn \$20,000 or more annually. Estimates of the percentage having both boat and motor present in the household are presented for broad income classes in table 4, below. It is significant in the present context that 13 percent of the population earning \$4,500 to \$9,999 in the South is the largest percentage ownership for this class. Boat and motor ownership dips down somewhat deeper into the income hierarchy in the South than in other regions. This is reflected in the water skiing participation by a peak rate of 0.95 for the South among those earning \$8,000 to \$9,999. The peak for the West and the Northeast falls in a higher income group. Within the North Central region the variation by income is less, even though the peak participation of 0.53 falls in the \$6,000 to \$7,999 income class (table 1.02.18).

Table 4. Percentage of persons reporting boat and motor in household, for broad income classes, by region, September 1960 survey

	National Recreation Survey			
	Annual family income			
	All	Less than \$4,500	\$4,500 to \$9,999	\$10,000 or more
United States	8	3	8	21
Northeast	5	2	4	20
North Central ..	8	3	9	19
South	9	4	13	24
West	8	4	5	25

Turning now to income by size of place of residence, it is not surprising to find that those earning \$15,000 or more annually report the highest rate of participation in water skiing among those who live in large cities (over 1 million). For those living in cities 50,000 to one million, the peak participation rate is reached with the \$6,000 to \$7,999 income class and the rate is fairly constant among higher income groups. In small cities, the relationship to income is somewhat similar, but the rates of participation are much lower. Among rural residents, on the other hand, the rate of participation is practically zero in the lower income group, but it increases to reach a peak (1.15 days per person) with the \$10,000 to \$14,999 income group, and falls off for the highest income class (table 1.03.18).

Consequently, the joint effect of income and size of place of residence is quite distinct for water skiing.

Nonwhites do not engage in water skiing frequently enough for the sample to register their participation. The survey only shows that, during the summer, nonwhites engage at a rate of less than 0.005 days per person. In contrast, whites engage at a rate of 0.34 days per person for the United States (tables 1.02.18 and 1.03.18).

A relationship between number of days water skiing by size of place of residence and region is observed only for the West. Here, the rate of participation for large cities, 0.19, increases to 1.0 for the rural population of standard metropolitan areas and declines thereafter to almost zero for the rural farm population. Thus, the urban population and those living near urban influences increase in water skiing with decreasing size of city. But evidently the rural farm population of the West is dispersed in areas sufficiently removed from boating water that distance intervenes to reduce participation (table 1.03.18).

The participation rate among persons 25 years of age and over is only 0.14 days per person. Among this group there is a tendency for the better educated to participate somewhat more, but the frequencies are small and the corresponding variations are indeterminate (table 1.02.18).

The data are somewhat more adequate for the employed population 14 years of age and over, although rates of participation are still quite low. Lowest rates are observed among the farmworkers and among the managers, officials, and proprietors (except farm). Service workers, including private service workers, have somewhat higher rates than the remainder of the population. There are small variations among occupations by region, but considering the low rates perhaps the differences are not meaningful (table 1.02.18).

Considering occupation by size of place of residence, there is a tendency for some occupational groups living in rural areas to participate more heavily than those living elsewhere. Occupational groups living in small urban places generally participate at lower rates than those living in larger urban places. Other than these, few differences by occupation among size of place of residence are evident.

Impairments limit water skiing participation of persons between ages 12 and 17. However, for those aged 18 to 44, the number of days water skiing per person is fairly constant whether or not the person has impairments (table 1.04.18).

State of health bears a positive relationship to water skiing—the better the health, the higher the rate for both male and female. This is the case not only among younger ages, but also among those 18 to 44 years. The rate for those older is too low to consider (table 1.04.18).

Water Skiing preferences

Five percent of the population indicate "some" preference for water skiing (first, second, and third choices) as a summer sport. Thus, water skiing ranks low in the preference order, although the

percentage who prefer water skiing during the summer months exceeds the percentage who prefer to hike, go nature walking, bicycling, and even to attend outdoor concerts and drama. The preference for this outdoor activity according to time available to engage is the same (1 percent) for vacations, trips and, outings (table 1.21).

Consistent with results reported for boating, participation in other water activities is associated with a preference for water skiing. This includes swimming, boating, camping, and fishing, greater participation in each indicating an increased percentage who prefer to water ski. The same is true for picnicking. Participation in no other activities shows a significant positive association with preference for water skiing (table 1.12).

The correlation coefficient (see appendix A, table 3C) for water skiing with the following activities are: boating (0.47), swimming (0.28), camping (0.21), fishing (0.16), and picnicking (0.14).

Nineteen percent of those preferring water skiing engage as freely as they would like. Reasons for restricted activity in water skiing are principally financial (33 percent), and a lack of time (29 percent). These reasons are similar to those obtained for restricted boating participation (table 1.14B).

Activity characteristics which may condition participation in water skiing include not only a minimum income for the purchase and maintenance of boat, skis, etc., but also available time. Not only must time to actually ski be considered, but also the time required to go from residence to lake or waterfront. Because the level of physical exertion is fairly high for water skiing, it is not surprising that it is principally an activity of youth. Perhaps it is not the physical activity alone which appeals to youth, but also the risk and uncertainty which make water skiing an exciting sport. Compared with many other outdoor activities, the level of skill is moderate. Because of the association with boats, water skiing becomes a relatively high status activity, although this may vary considerably with the group. The level of skill required to participate is undoubtedly improved with practice, but, except for stunt and high-hazard activities, continuous learning is not enabled through participation. Motivations to engage in water skiing include those motivations associated with swimming as well as boating. Additional attractions include speeding over water with risk and the thrill of successfully meeting situations requiring quick decisions. Water skiing is always a group activity, since the skier must be associated with the boat pilot. Increases in surface water would undoubtedly lead to increases in water skiing participation. A reduction in stream contamination would increase participation. Wide adoption of suits to wear for cold weather skiing might lead the more daring to engage more heavily in the fall and in spring. Other than these factors, an increase in participation rests more upon an increase in the use of boats and an increase in available leisure time than other factors.

FISHING

The United States population 12 years of age and over fishes at a rate of 4.19 occasions per person, annually. The rate is greater in the summer (1.99) and spring (1.07) than in the fall (0.75) or winter (0.38) (tables 1.01, 2.01, 3.01, 4.01).

There is evidence from the National Survey of Fishing and Hunting that the average days per person fishing increased about one-third from 1955 to 1960, as is shown by the following:^{3/}

1955 "times" per person (NSH&F)	2.58
1960 days per person (NSF&H)	3.55
1960-61 days per person (NRS)	4.19

The difference of 0.64 days per person, 1960, is explained chiefly by differences between two surveys in definition of a fisherman.^{4/}

The rate of fishing is greatest in the South, 5.3 occasions per person for the year. And the rate in the South is as great or greater than other regions for each season, being matched in the fall by the West. Lowest fishing rates are recorded for the Northeast, where throughout the year the population engages 3.26 times per person (tables 1.02.08, 2.02.08, 3.02.08, and 4.02.08).

Now, examining in detail survey results for summer 1960, (table 1.02.08), we find that, except for swimming, fishing is the most popular of the water-oriented outdoor summer activities. More than 37 million persons, 12 years of age and above, fished at least one time during June-August, 1960. This is 29 percent of this population. The percentage varies from 21 in the Northeast to 33 in the South and North Central States. However, as mentioned above, the rate per person is greater in the South than in other regions, even though regional differences are small.

Females fish about one-third as frequently as males. However, this ratio increases to approximately one-half for older females.

Males fish more in younger ages, than when they are older, and the rate for the United States decreases with each older age group. This is generally true for each region, although not consistently so. The pattern for females is almost the reverse, however. Females fish infrequently in the younger ages but more frequently as they become older. For the South the average days participation for females increases with each age group to those 65 years and over (table 1.02.08).

As one moves from the large city to rural areas, the fishing rate increases, reaching a peak of 3 occasions per person among rural nonfarm residents, a rate three times that for cities over 1 million population. With some variation this relationship holds for each region. Within urban areas, the North Central region has the heaviest participation rate (table 1.02.08). Thus, participation increases with proximity to the resource, as the latter is measured by urbanization.

Fishing and residence

Fishing rates vary more by size of place of residence than they do by region, as is seen in comparing the days per person by region with the days per person by size of place of residence (tables 1.02.08 and 1.03.08).

This is generally true also, for age and sex by size of place of residence. The rate of participation for the rural male decreases uniformly from the youngest to the oldest age groups (9.3 to 1.5 days per person). This is the most consistent relationship of all size of place of residence classes for fishing, but generally the rates by age for males follow this pattern. The rates for females by residence classes are much less consistent. For small urban places, the female rates increase with age to 65 years, but the ages of peak rates are different for other size of place of residence classes (table 1.03.08).

The middle-range income groups participate in fishing more heavily than the two upper and two lower income classes for the United States. This pattern holds generally for each region, although it is more irregular in the Northeast and West than other regions (table 1.02.08).

There are significant variations in the rate of fishing within each income class, depending upon size of place of residence. For practically all income groups the rate of participation increases as one moves from large cities to rural areas. Thus, those earning less than \$3,000 who live in cities over 1 million participate at a rate of 0.23 occasions per person. Persons in this income class living in rural territory participate at a rate about seven times greater. For the \$6,000 to \$8,000 income range, the rate increases from 0.73 for the large city population to a rate about five times larger for the rural population. Thus the peak rural rate is 3.79 days per person, falling in the \$3,000 to \$4,499 income group. For the city of over 1 million the highest participation level, 2.32, is attained by the income group earning \$15,000 or more. Thus, proximity to the rural environment favors use by lower income groups. Differences in rates appear to be significant between residence classes and

^{3/}These occasions per person were estimated, as follows:

1. Estimated from table 8, p. 59, "1955 National Survey of Hunters and Fishermen." The open end class was estimated from NRS data to have a midpoint at 70.5. Population was estimated at 125,536,000.

2. From table 13, "1960 National Survey of Fishing and Hunting;" population: 131,226,000.

3. From tables 1.01, 2.01, 3.01, and 4.01, "National Recreation Survey," part II.

^{4/}This is explained in appendix D of the "1960 National Survey of Fishing and Hunting." The "National Recreation Survey" presents data on total participation during 3 month periods June 1960 to June 1961 while the "1960 National Survey of Fishing and Hunting" presents data on "substantial" participants during calendar 1960, which excludes "primarily unlicensed persons who fished or hunted once or twice and who spent little or nothing to do so." One reason for using this definition in the "National Survey of Fishing and Hunting" was to make possible a comparison between the 1955 and 1960 fishing and hunting. When the two surveys are adjusted to make them comparable, they give substantially the same estimates of percent engaging one or more times. (See appendix 3.)

between income, but residence accounts for considerably more of the variance (table 1.03.08).

Among those 25 years of age and over, there is a tendency for the summer fishing participation to increase with years of formal schooling. However, this relationship is not consistent within each region (table 1.02.08).

For the Nation as a whole, the white and nonwhite fishing participation rates are quite similar but there are considerable regional variations between color groups. In the Northeast, for example, the whites fish about six times the rate of the nonwhite group. This ratio is about four for the West, but only 1.5 in the North Central States. In the South, on the other hand, the nonwhite fishes more often, the white being only 0.65 of the nonwhite rate (table 1.02.08). However, females, both white or nonwhite, fish about one-third as frequently as corresponding males (table 1.03.08).

When residence is considered, color differences in participation show up prominently. Nonwhite participation in rural and small urban places exceeds the white, but nonwhite rates in large urban places are low compared with white rates, both for male and female. Although our nonwhite sample is small, making the nonwhite rates less reliable, nevertheless, this pattern is quite clear (table 1.03.08).

Persons with no impairments participate in fishing at higher levels than those with impairments, and those whose impairments are limiting participate much less in fishing. This pattern is fairly uniform for each age group. Those with limiting impairments participate at a rate only about half that of the total (table 1.04.08).^{5/}

Fishing preferences

Fishing is a preferred outdoor activity among 33 percent of the population. It ranks second, with picnicking, to swimming in order of preference. As a preferred activity on vacation it ranks third, giving place to sightseeing and swimming as the preferred outdoor activity. These three activities by far exceed all others as preferences for the vacation. Thirteen percent of the population prefer fishing for a weekend trip, again placing fishing in third position to swimming and sightseeing. For a day's outing, fishing ranks third (11 percent), with swimming and picnicking exceeding it. With only 2 or 3 hours available, 5 percent of the population would prefer to fish, placing fishing in fifth position in order of preference for this time period. Thus, for any

^{5/}Additional details on the current characteristics of sport fishermen is available in "1960 National Survey of Fishing and Hunting," Washington: U.S. Department of the Interior, 1961, (Circular 120). A discussion of supply factors and the future role of recreation fishing is contained in Willis King, Jack E. Hemphill, Albert H. Swartz, and Karl F. Stutzman, "Sport Fishing Today and Tomorrow." Washington: Outdoor Recreation Resources Review Commission, 1962, Study Report 7. Other ORRRC reports of interest are Study Report 10, "Water for Recreation—Values and Opportunities," Study Report 4, "Shoreline Recreation Resources of the United States," and Study Report 1, "Public Outdoor Recreation Areas—Acreage, Use, Potential."

type of recreation occasion, fishing stands fairly high in the order of popularity (table 1.21).

The percentage preferring fishing as a general outdoor activity varies inversely with size of place of residence, from 20 percent expressing a preference in large urban areas to 45 percent expressing a preference in rural areas. More people express a preference for fishing in the South than for any other activity (44 percent). However in the North Central region swimming (39 percent) is preferred over fishing (36 percent), and in the West fishing is equalled by picnicking, and excelled in preference by swimming, and in the Northeast it is excelled by picnicking, driving for pleasure, and swimming as preferred activities (table 1.17).

Preference for fishing (54 percent) is highest in the 25 to 44 age group. This is true for males, but females in each age group (to 65 and over) prefer swimming and picnicking to fishing (table 1.17).

As a general preference, males prefer fishing (47 percent) even over swimming (40 percent). Females prefer swimming (43 percent), driving for pleasure (31 percent), and sightseeing (24 percent), as well as picnicking (47 percent), in preference to fishing (20 percent) (table 1.17).

Participating in fishing is negatively associated with a preference for such activities as picnicking, walking for pleasure, driving for pleasure, sightseeing, attending outdoor sports, and attending outdoor concerts, etc. On the other hand it is positively associated with preference for camping, hunting, boating, and water skiing. Thus, the person who enjoys fishing also has a preference for these active land and water activities (table 1.12).

One fourth of those who prefer fishing participate as freely as they would like. Forty-eight percent of those who prefer fishing mention time restrictions as a reason for not engaging more often. This by far overshadows other reasons. Financial restrictions were mentioned by only 9 percent; facilities were mentioned by only 7 percent. One may conclude that lack of income is not the major factor restricting participation in fishing (table 1.14B). Increases in available leisure time will most probably result in increased fishing participation.

Factors associated with fishing depend upon the type of fishing engaged in. Fishing in salt water, from a bank or a pier, from a rowboat or a motorboat, fishing still or in motion—each implies slightly different time periods, different physical activity requirements, skill demands, and equipment. As one might expect, then, the time required varies from all day to an hour or so, and may include as much as a weekend or week trip. A great many fishing occasions undoubtedly require little or no expenditure, even for bait. On the other hand, some fishing requires extensive paraphernalia, expensive boats, and other kinds of capital outlay. Consequently, some types of fishing are readily accessible to all income groups, while other types of fishing are restricted to those who have sufficient available income. Income and geographic area of residence, then, bear significantly upon type of fishing.

Some insight into these differences is available from the "1960 National Survey of Fishing and Hunting." Expenditures per fisherman was lowest for salt water fishermen on the Pacific coast (\$91.62) and highest for Atlantic coast salt water fishermen (\$102.39). Fresh water fishermen spent an average of \$95.25. Approximately one-third of the fresh water fishermen most often use natural lakes and ponds and approximately one-third most often use rivers and streams, but these percentages vary greatly from region to region. For example, natural lakes and ponds are most often used by about 60 percent of the fresh water fishermen in New England, but by only 8 percent in the East South Central States. Rivers and streams are most often used by about 51 percent of the Mountain States and Pacific States fresh water fishermen. Such factors, of course, are quite closely resource oriented.^{6/}

The level of physical activity expended on a fishing occasion may vary considerably. Sitting in a boat or on a bank requires little effort, while standing in a swiftly moving stream fly-fishing can be quite exhausting physically. Similarly for skill: the level of skill depends upon the type of fishing and nature of the lures used. As is the case in many contacts with nature, even the most experienced fisherman has much to learn and may always find possibilities to improve his skill. The normal or typical fishing experience is not likely to bring status to the participant. If he possesses unusual skill or consistently returns with a good catch, he is likely to be accorded appropriate prestige. Similarly, fishing with expensive equipment, such as in certain types of sea fishing, undoubtedly brings greater status than other types of fishing.

As is the case with many outdoor activities, the participant is undoubtedly motivated by any number of incentives. He seeks food, and the better the catch the more rewarding the experience. Once the fishing skill is acquired, for example in casting, the exercise of the skill becomes a motive for fishing. But there are other motives. The fisherman may

seek the peace and tranquility of the shady cove, or he may join with others and find the sociability of the occasion the more rewarding experience. The father or mother may wish to pass on to the child the pleasures of the sport. The young lad may wish to bring home as large a catch as his friend. These and many other motives undoubtedly go with the fisherman to the lake, stream, or shore.

Fishing leases

Table 5 shows that about 1 percent of the population 12 years of age and over leased fishing rights "during the last 12 months." This is approximately 49 persons with leases for each 1,000 fishermen. In total there were approximately 1,240,000 persons reporting fishing leases in effect during this period. However, this does not mean that the lease was effective during the entire period of the year, as may be inferred by examining tables of hunting leases (table 13). By region there were more persons with leases per capita in the South than other areas. There were approximately 20 persons per thousand population reporting leases in the South compared with approximately 7 in the North Central region and about 4 in the Northeast and West.^{7/}

Table 5. Estimated number of persons with fishing lease, and per capita fishing leases held "during the last 12 months," by region

Persons with fishing lease	National Recreation Survey				
	Region				
	United States	North-east	North Central	South	West
Number (add 000)...	1,240	138	269	761	72
Per 1,000 population					
12 years and over...	9.74	3.95	7.28	19.56	3.51
Per 1,000 fishermen	49.0	36.5	32.0	84.2	16.6

Note: Estimates of fishermen from the "1960 National Survey of Fishing and Hunting," p. 52.

^{6/}The "1960 National Survey of Fishing and Hunting," op. cit., pp. 43-55.

^{7/}See Ch. 5, Hunting Lease section for related information.